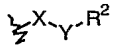
CLAIMS

1. A compound of formula (I):

(I)

and the pharmaceutically acceptable salts, and other pharmaceutically acceptable biohydrolyzable derivatives thereof;

wherein R^1 is an optionally substituted C_{3-12} carbocyclyl or C_{3-12} heterocyclyl group or group of formula (II)



(II)

wherein X is NR^3, O, S or $(CR^{22}R^{22})_n$, Y is absent or is NR^{23}, O, or $(CR^{23}R^{23})_n$, R^2 is optionally substituted C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{3-12} carbocyclyl or C_{3-12} heterocyclyl, and R^4 is an optionally substituted five or six membered heterocyclyl group or an optionally substituted six membered carbocyclyl group.

2. A compound as claimed in claim 1 wherein the optionally substituted carbocyclyl or heterocyclyl group of R^1 is optionally fused to a partially saturated, unsaturated or fully saturated five to seven membered ring containing zero to three heteroatoms, and each substitutable carbon atom in R^1, including the optional fused ring, is optionally and independently substituted by one or more of halogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, haloC_{1-12}alkyl, C_{3-12} carbocyclyl, C_{3-12} heterocyclyl, $(CH_2)_nOR^5$, $(CH_2)_nNR^5{}_2(CH_2)_nSR^5$, OR^5, SR^5, NO_2, CN, $NR^5{}_2$, NR^5COR^5, $NR^5CONR^5{}_2$, NR^5COR^5, $NR^5CO_2R^5$, CO_2R^5, COR^5, $CONR^5{}_2$, $S(O)_2R^5$, $SONR^5{}_2$, $S(O)R^5$, $SO_2NR^5{}_2$, or $NR^5S(O)_2R^5$ wherein

the C_{1-12} alkyl group optionally contains one or more insertions selected from -O-, -N(R^5)- -S-, -S(O)- and –S(O_2)-; and each saturated carbon in the optional fused ring is further optionally and independently substituted by =O, =S, NNR^6_2, =N-OR^6, =NNR^6COR^6, =$NNR^6CO_2R^6$, =$NNSO_2R^6$, or =NR^6; and each substitutable nitrogen atom in R^1 is optionally substituted by R^7, COR^7, SO_2R^7 or CO_2R^7;

wherein n is 1 to 6, preferably n is 1, 2 or 3;

wherein R^5 is hydrogen , C_{1-12} alkyl, C_{3-12} carbocyclyl or C_{3-12} heterocyclyl, optionally substituted by one or more of C_{1-6} alkyl, C_{3-12} carbocyclyl, C_{3-12} heterocyclyl, halogen, C_{1-6} haloalkyl, OR^8, SR^8, NO_2, CN, NR^8R^8, NR^8COR^8, $NR^8CONR^8R^8$, NR^8COR^8, $NR^8CO_2R^8$, CO_2R^8, COR^8, $CONR^8_2$, $S(O)_2R^8$, $SONR^8_2$, $S(O)R^8$, $SO_2NR^8R^8$, $NR^8S(O)_2R^8$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -N(R^8)-, -S(O)- and –S(O_2)-, wherein each R^8 may be the same or different and is as defined below;

wherein two R^5 in NR^5_2 may optionally form a partially saturated, unsaturated or fully saturated three to seven membered ring containing one to three heteroatoms, optionally and independently substituted by one or more of C_{1-6} alkyl, halogen, C_{1-6} haloalkyl, OR^8, SR^8, NO_2, CN, NR^8R^8, NR^8COR^8, $NR^8CONR^8R^8$, NR^8COR^8, $NR^8CO_2R^8$, CO_2R^8, COR^8, $CONR^8_2$, $S(O)_2R^8$, $SONR^8_2$, $S(O)R^8$, $SO_2NR^8R^8$, $NR^8S(O)_2R^8$,
wherein the C_{1-6} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -N(R^8)-, -S(O)- and –S(O_2)-, wherein each R^8 may be the same or different and is as defined below;

wherein R^6 is hydrogen, C_{1-12} alkyl, C_{3-12} carbocyclyl or C_{3-12} heterocyclyl, optionally substituted by one or more of C_{1-6} alkyl, halogen, C_{1-6} haloalkyl,

OR^8, SR^8, NO_2, CN, NR^8R^8, NR^8COR^8, $NR^8CONR^8R^8$, NR^8COR^8, $NR^8CO_2R^8$, CO_2R^8, COR^8, $CONR^8_2$, $S(O)_2R^8$, $S(O)R^8$, $SO_2NR^8R^8$, $NR^8S(O)_2R^8$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -N(R^8)-, -S(O)- and –S(O_2)-, wherein each R^8 may be the same or different and is as defined below;

wherein R^7 is hydrogen, C_{6-12} aryl, C_{1-6} alkyl or C_{1-6} haloalkyl;

wherein R^8 is hydrogen, C_{1-6} alkyl, or C_{1-6} haloalkyl.

3. A compound as claimed in claim 1 or 2 wherein Y is absent or is NR^{23}, O, $(CR^{23}R^{23})_n$,
wherein each R^{23} is H, C_{1-4} alkyl, C_{1-4} alkoxy or C_{1-4} haloalkyl;
and n is 1 to 6, preferably n is 1, 2, 3 or 4; and

R^2 is optionally substituted C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{3-12} carbocyclyl or C_{3-12} heterocyclyl, , wherein the optionally substituted carbocyclyl or heterocyclyl group is optionally fused to one to three unsaturated, partially unsaturated or fully saturated five to seven membered rings containing zero to three heteroatoms;
each substitutable carbon atom in R^2, including the optional fused ring, is optionally and independently substituted by one or more of C_{1-12} alkyl, C_{3-12} cycloalkyl, C_{3-12} heterocycloalkyl, C_{3-12} aryl, C_{3-12} heteroaryl halogen, C_{1-12} haloalkyl, OR^9, SR^9, NO_2, CN, NR^9R^9, NR^9COR^9, $NR^9CONR^9R^9$, NR^9COR^9, $NR^9CO_2R^9$, CO_2R^9, COR^9, $CONR^9R^9$, $S(O)_2R^9$, $SONH_2$, $S(O)R^9$, $SO_2NR^9R^9$, $NR^9S(O)_2R^9$, wherein each R^9 may be the same or different and is as defined below and wherein:

the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -C(O)-, -N(R^9)-, -S(O)- and –S(O_2)-, wherein each R^9 may be the same or different and is as defined above;

the C_{1-12} alkyl, C_{3-12} cycloalkyl, C_{3-12} heterocycloalkyl, C_{3-12} aryl, or C_{3-12} heteroaryl groups are optionally substituted by one or more of halogen, C_{1-12} haloalkyl, OR^9, SR^9, NO_2, CN, NR^9R^9, NR^9COR^9, $NR^9CONR^9R^9$, NR^9COR^9, $NR^9CO_2R^9$, CO_2R^9, COR^9, $CONR^9R^9$, $S(O)_2R^9$, $SONH_2$, $S(O)R^9$, $SO_2NR^9R^9$, $NR^9S(O)_2R^9$, wherein each R^9 may be the same or different and is as defined below; and

the C_{3-12} cycloalkyl, C_{3-12} heterocycloalkyl, C_{3-12} aryl, or C_{3-12} heteroaryl groups are optionally substituted by one or more C_{1-12} alkyl groups;

each saturated carbon in R^2, including the optional fused ring, is further optionally and independently substituted by =O, =S, NNR^9R^9, =N-OR^9, =NNHCOR^9, =NNHCO_2R^9, =NNSO_2R^9, or =NR^9, wherein each R^9 may be the same or different and is as defined below; and

each substitutable nitrogen atom in R^2 is optionally substituted by R^{10}, COR^9, SO_2R^9 or CO_2R^9 wherein each R^9 and R^{10} may be the same or different and is as defined below;

wherein two R^9 in $NR^9{}_2$ may optionally form a partially saturated, unsaturated or fully saturated three to seven membered ring containing one to three heteroatoms, optionally and independently substituted by one or more of C_{1-6} alkyl, halogen, C_{1-6} haloalkyl, OR^{11}, SR^{11}, NO_2, CN, $NR^{11}R^{11}$, $NR^{11}COR^{11}$, $NR^{11}CONR^{11}R^{11}$, $NR^{11}COR^{11}$, $NR^{11}CO_2R^{11}$, CO_2R^{11}, COR^{11}, $CONR^{11}{}_2$, $S(O)_2R^{11}$, $SONR^{11}{}_2$, $S(O)R^{11}$, $SO_2NR^{11}R^{11}$, $NR^{11}S(O)_2R^{11}$,

wherein the C_{1-6} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -N(R^{11})-, -S(O)- and –S(O_2)-, wherein each R^{11} may be the same or different and is as defined below;

wherein R^{11} is hydrogen, C_{1-6} alkyl, or C_{1-6} haloalkyl;

wherein R^9 is hydrogen , C_{1-12} alkyl or C_{3-12} aryl, optionally substituted by one or more of C_{1-4} alkyl, halogen, C_{1-4} haloalkyl, OR^{12}, SR^{12}, NO_2, CN, $NR^{12}R^{12}$, $NR^{12}COR^{12}$, $NR^{12}CONR^{12}R^{12}$, $NR^{12}COR^{12}$, $NR^{12}CO_2R^{12}$, CO_2R^{12}, COR^{12}, $CONR^{12}{}_2$, $S(O)_2R^{12}$, $SONH_2$, $S(O)R^{12}$, SO_2 $NR^{12}R^{12}$, $NR^{12}S(O)_2R^{12}$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -N(R^{12})-, -S(O)- and –S(O_2)-, wherein each R^{12} may be the same or different and is as defined below;

wherein R^{10} is C_{1-12} alkyl or C_{3-12} aryl, optionally substituted by one or more of C_{1-4} alkyl, halogen, C_{1-4} haloalkyl, OR^{12}, SR^{12}, NO_2, CN, $NR^{12}R^{12}$, $NR^{12}COR^{12}$, $NR^{12}CONR^{12}R^{12}$, $NR^{12}COR^{12}$, $NR^{12}CO_2R^{12}$, CO_2R^{12}, COR^{12}, $CONR^{12}{}_2$, $S(O)_2R^{12}$, $SONH_2$, $S(O)R^{12}$, $SO_2NR^{12}R^{12}$, $NR^{12}S(O)_2R^{12}$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -N(R^{12})-, -S(O)- and –S(O_2)-, wherein each R^{12} may be the same or different and is as defined below;

wherein R^{12} is hydrogen, C_{1-4} alkyl, or C_{1-4} haloalkyl.

4. A compound as claimed in any one of claims 1 to 3 wherein X is NR^3; O, S or $(CR^{22}\text{-}R^{22})_n$ wherein R^{22} is independently one or more of halogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{6-12} carbocyclyl, C_{5-12} heterocyclyl, $(CH_2)_nOR^5$, $(CH_2)_nNR^5{}_2$, OR^5, SR^5, NO_2, CN, $NR^5{}_2$, NR^5COR^5, $NR^5CONR^5{}_2$, NR^5COR^5, $NR^5CO_2R^5$, CO_2R^5, COR^5, $CONR^5{}_2$, $S(O)_2R^5$, $SONR^5{}_2$, $S(O)R^5$, $SO_2NR^5{}_2$, or $NR^5S(O)_2R^5$ wherein each R^5 may be the same or different and is as defined above; and

wherein n is 1 to 6, preferably n is 1, 2, 3 or 4;

and wherein R^3 is a lone electron pair, hydrogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{3-12} carbocyclyl or C_{3-12} heterocyclyl, each of which is optionally substituted, wherein:

the optionally substituted carbocyclyl or heterocyclyl group is optionally fused to one to three unsaturated, partially unsaturated or fully saturated five to seven membered rings containing zero to three heteroatoms,

each substitutable carbon atom in R^3, including the optional fused ring, is optionally and independently substituted by one or more of C_{1-12} alkyl, C_{3-12} cycloalkyl, C_{3-12} heterocycloalkyl, C_{3-12} aryl, C_{3-12} heteroaryl halogen, C_{1-12} haloalkyl, OR^{13}, SR^{13}, NO_2, CN, $NR^{13}R^{13}$, $NR^{13}COR^{13}$, $NR^{13}CONR^{13}R^{13}$, $NR^{13}COR^{13}$, $NR^{13}CO_2R^{13}$, CO_2R^{13}, COR^{13}, $CONR^{13}R^{13}$, $S(O)_2R^{13}$, $SONH_2$, $S(O)R^{13}$, $SO_2NR^{13}R^{13}$, $NR^{13}S(O)_2R^{13}$, wherein each R^{13} may be the same or different and is as defined above and wherein:

the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -C(O)-, -N(R^{13})-, -S(O)- and –S(O_2)-, wherein each R^{13} may be the same or different and is as defined above;

the C_{1-12} alkyl, C_{3-12} cycloalkyl, C_{3-12} heterocycloalkyl, C_{3-12} aryl, or C_{3-12} heteroaryl groups are optionally substituted by one or more of halogen, C_{1-12} haloalkyl, OR^{13}, SR^{13}, NO_2, CN, $NR^{13}R^{13}$, $NR^{13}COR^{13}$, $NR^{13}CONR^{13}R^{13}$, $NR^{13}COR^{13}$, $NR^{13}CO_2R^{13}$, CO_2R^{13}, COR^{13}, $CONR^{13}R^{13}$, $S(O)_2R^{13}$, $SONH_2$, $S(O)R^{13}$, $SO_2NR^{13}R^{13}$, $NR^{13}S(O)_2R^{13}$, wherein each R^{13} may be the same or different and is as defined below; and

the C_{3-12} cycloalkyl, C_{3-12} heterocycloalkyl, C_{3-12} aryl, or C_{3-12} heteroaryl groups are optionally substituted by one or more C_{1-12} alkyl groups;

each saturated carbon in R^2, including the optional fused ring, is further optionally and independently substituted by =O, =S, $NNR^{13}R^{13}$, =N-OR^{13}, =$NNHCOR^{13}$, =$NNHCO_2R^{13}$, =$NNSO_2R^{13}$, or =NR^{13}, wherein each R^{13} may be the same or different and is as defined below; and

each substitutable nitrogen atom in R^3 is optionally substituted by R^{14}, COR^{13}, SO_2R^{13} or CO_2R^{13} wherein each R^{13} and R^{14} may be the same or different and is as defined below;

wherein two R^{13} in NR^{13}_2 may optionally form a partially saturated, unsaturated or fully saturated three to seven membered ring containing one to three heteroatoms, optionally and independently substituted by one or more of C_{1-6} alkyl, halogen, C_{1-6} haloalkyl, OR^{15}, SR^{15}, NO_2, CN, $NR^{15}R^{15}$, $NR^{15}COR^{15}$, $NR^{15}CONR^{15}R^{15}$, $NR^{15}COR^{15}$, $NR^{15}CO_2R^{15}$, CO_2R^{15}, COR^{15}, $CONR^{15}_2$, $S(O)_2R^{15}$, $SONR^{15}_2$, $S(O)R^{15}$, $SO_2NR^{15}R^{15}$, $NR^{15}S(O)_2R^{15}$,

wherein the C_{1-6} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -N(R^{15})-, -S(O)- and –S(O_2)-, wherein each R^{15} may be the same or different and is as defined below;

wherein R^{15} is hydrogen, C_{1-6} alkyl, or C_{1-6} haloalkyl;

wherein R^{13} is hydrogen , C_{1-12} alkyl or C_{3-12} aryl, optionally substituted by one or more of C_{1-4} alkyl, halogen, C_{1-4} haloalkyl, OR^{16}, SR^{16}, NO_2, CN, $NR^{16}R^{16}$, $NR^{16}COR^{16}$, $NR^{16}CONR^{16}R^{16}$, $NR^{16}COR^{16}$, $NR^{16}CO_2R^{16}$, CO_2R^{16}, COR^{16}, $CONR^{16}_2$, $S(O)_2R^{16}$, $SONH_2$, $S(O)R^{16}$, SO_2 $NR^{16}R^{16}$, $NR^{16}S(O)_2R^{16}$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -N(R^{16})-, -S(O)- and –S(O_2)-, wherein each R^{16} may be the same or different and is as defined below;

wherein R^{14} is C_{1-12} alkyl or C_{3-12} aryl, optionally substituted by one or more of C_{1-4} alkyl, halogen, C_{1-4} haloalkyl, OR^{16}, SR^{16}, NO_2, CN, $NR^{16}R^{16}$, $NR^{16}COR^{16}$, $NR^{16}CONR^{16}R^{16}$, $NR^{16}COR^{16}$, $NR^{16}CO_2R^{16}$, CO_2R^{16}, COR^{16}, $CONR^{16}_2$, $S(O)_2R^{16}$, $SONH_2$, $S(O)R^{16}$, $SO_2NR^{16}R^{16}$, $NR^{16}S(O)_2R^{16}$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -N(R^{16})-, -S(O)- and –S(O_2)-, wherein each R^{16} may be the same or different and is as defined below;

wherein R^{16} is hydrogen, C_{1-4} alkyl, or C_{1-4} haloalkyl;

wherein when X is NR^2, R^2 and R^3 can form a 3 to 12 membered heterocyclyl ring, more preferably a 5, 6, 7, 8, 9, 10, 11 or 12 membered ring, wherein said ring can be partially saturated, unsaturated or fully saturated containing one to three heteroatoms; wherein the heterocyclylic group formed by R^2 and R^3 can be optionally fused to one to three unsaturated, partially saturated or fully saturated 5 to 7 membered rings containing zero to three heteroatoms, any of said rings being optionally and independently substituted with one or more of C_{1-6} alkyl, halogen, C_{1-6} haloalkyl, OR^{22}, SR^{22}, NO_2, CN, $NR^{22}R^{22}$, $NR^{22}COR^{22}$, $NR^{22}CONR^{22}R^{22}$, $NR^{22}COR^{22}$, $NR^{22}CO_2R^{22}$, CO_2R^{22}, COR^{22}, $CONR^{22}{}_2$, $S(O)_2R^{22}$, $SONR^{22}{}_2$, $S(O)R^{22}$, $SO_2NR^{22}R^{22}$, $NR^{22}S(O)_2R^{22}$, wherein the C_{1-6} alkyl group optionally incorporates one or two insertions from –O-, -$N(R^{22})$-, -S(O)- and –$S(O_2)$- and wherein each R^{22} may be the same or different.

5. A compound as claimed in any one of claims 1 to 4 wherein R^4 is a six-membered carbocyclyl group or a five or six-membered heterocyclyl group containing from 1 to 4 heteroatoms independently selected from N, S or O, wherein the optionally substituted six-membered carbocyclyl or five or six-membered heterocyclyl group is optionally fused to a partially saturated, unsaturated or fully saturated five to seven membered ring containing zero to three heteroatoms, and each substitutable carbon or hetero-atom in R^4 including the optional fused ring, is optionally and independently substituted by one or more of halogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{3-12} carbocyclyl, C_{3-12} heterocyclyl, $(CH_2)_nOR^{17}$, $(CH_2)_nNR^{17}{}_2$, OR^{17}, SR^{17}, NO_2, CN, $NR^{17}{}_2$, $NR^{17}COR^{17}$, $NR^{17}CONR^{17}{}_2$, $NR^{17}COR^{17}$, $NR^{17}CO_2R^{17}$, CO_2R^{17}, COR^{17}, $CONR^{17}{}_2$, $S(O)_2R^{17}$, $SONR^{17}{}_2$, $S(O)R^{17}$, $SO_2NR^{17}{}_2$, or $NR^{17}S(O)_2R^{17}$, wherein the C_{1-12} alkyl group optionally contains one or more insertions

selected from -O-, -N(R^{12})- -S-, -S(O)- and –S(O_2)-; and each saturated carbon in the optional fused ring is further optionally and independently substituted by =O, =S, $NNR^{18}{}_2$, =N-OR^{18}, =$NNR^{18}COR^{18}$, =$NNR^{18}CO_2R^{18}$, =$NNSO_2R^{18}$, or =NR^{18}; and each substitutable nitrogen atom in R^4 is optionally substituted by R^{19}, COR^{19}, SO_2R^{19} or CO_2R^{19}; wherein n is 1 to 6, preferably n is 1, 2 or 3; preferably, wherein each substitutable carbon or hetero-atom in R^4 is optionally and independently substituted by one or more of C_{1-6} alkyl, OR^{20}, SR^{20}, NO_2, CN, $NR^{20}{}_2$, $NR^{20}COR^{20}$, $NR^{20}CONR^{20}{}_2$, $NR^{20}COR^{20}$, $NHCO_2R^{20}$, CO_2R^{20}, COR^{20}, $CONR^{20}{}_2$, $S(O)_2R^{20}$, $SONR^{20}{}_2$, $S(O)R^{20}$, $SO_2NR^{20}{}_2$, or $NR^{20}S(O)_2R^{20}$;

wherein R^{20} is hydrogen, C_{1-6} alkyl, or C_{1-6} haloalkyl;

wherein R^{17} is hydrogen , C_{1-12} alkyl, C_{3-12} carbocyclyl or C_{3-12} heterocyclyl, optionally substituted by one or more of C_{1-6} alkyl, C_{3-12} carbocyclyl, C_{3-12} heterocyclyl, halogen, C_{1-6} haloalkyl, OR^{21}, SR^{21}, NO_2, CN, $NR^{21}R^{21}$, $NR^{21}COR^{21}$, $NR^{21}CONR^{21}R^{21}$, $NR^{21}COR^{21}$, $NR^{21}CO_2R^{21}$, CO_2R^{21}, COR^{21}, $CONR^{21}{}_2$, $S(O)_2R^{21}$, $SONR^{21}{}_2$, $S(O)R^{21}$, $SO_2NR^{21}R^{21}$, $NR^{21}S(O)_2R^{21}$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -N(R^{21})-, -S(O)- and –S(O_2)-, wherein each R^{21} may be the same or different and is as defined below;

wherein two R^{17} in $NR^{17}{}_2$ may optionally form a partially saturated, unsaturated or fully saturated three to seven membered ring containing one to three heteroatoms, optionally and independently substituted by one or more of C_{1-6} alkyl, halogen, C_{1-6} haloalkyl, OR^{21}, SR^{21}, NO_2, CN, $NR^{21}R^{21}$, $NR^{21}COR^{21}$, $NR^{21}CONR^{21}R^{21}$, $NR^{21}COR^{21}$, $NR^{21}CO_2R^{21}$, CO_2R^{21}, COR^{21}, $CONR^{21}{}_2$, $S(O)_2R^{21}$, $SONR^{21}{}_2$, $S(O)R^{21}$, $SO_2NR^{21}R^{21}$, $NR^{21}S(O)_2R^{21}$, wherein the C_{1-6} alkyl group optionally incorporates one or two insertions selected from the

group consisting of -O-, -N(R^{21})-, -S(O)- and –S(O_2)-, wherein each R^{21} may be the same or different and is as defined below;

wherein R^{18} is hydrogen, C_{1-12} alkyl, C_{3-12} carbocyclyl or C_{3-12} heterocyclyl, optionally substituted by one or more of C_{1-6} alkyl, halogen, C_{1-6} haloalkyl, OR^{21}, SR^{21}, NO_2, CN, $NR^{21}R^{21}$, $NR^{21}COR^{21}$, $NR^{21}CONR^{21}R^{21}$, $NR^{21}COR^{21}$, $NR^{21}CO_2R^{21}$, CO_2R^{21}, COR^{21}, $CONR^{21}{}_2$, $S(O)_2R^{21}$, $S(O)R^{21}$, $SO_2NR^{21}R^{21}$, $NR^{21}S(O)_2R^{21}$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -N(R^{21})-, -S(O)- and –S(O_2)-, wherein each R^{21} may be the same or different and is as defined below;

wherein R^{19} is hydrogen, C_{6-12} aryl, C_{1-6} alkyl or C_{1-6} haloalkyl;
wherein R^{21} is hydrogen, C_{1-6} alkyl, or C_{1-6} haloalkyl.

6. A compound as claimed in any one of claims 1 to 5 wherein R^1 is an optionally substituted five or six membered carbocyclyl or heterocyclyl group selected from optionally substituted phenyl, acridine, benzimidazole, benzofuran, benzothiophene, benzoxazole, benzothiazole, cyclohexyl furan, imidazole, indole, isoindole, isoquinoline, isoxazole, isothiazole, morpholine, napthaline, oxazole, phenazine, phenothiazine, phenoxazine, piperazine, piperidine, pyrazole, pyridazine, pyridine, pyrrole, quinoline, quinolizine, tetrahydrofuran, tetrazine, tetrazole, thiophene, thiazole, thiomorpholine, thianaphthalene, thiopyran, triazine, triazole or trithiane.

7. A compound as claimed in any one of claims 1 to 6 wherein R^1 is a group of formula (II), wherein X is a group NR^3, Y is absent and one or more of R^2 and R^3 is hydrogen, alkyl or cycloalkyl.

8. A compound as claimed in claim 7 wherein the group of formula (II) is an alkylamino or cycloalkylamino group preferably selected from optionally substituted methylamino, ethylamino, propylamino, isopropylamino, butylamino, cyclobutylamino, pentylamino, cyclopentylamino, hexylamino, cyclohexylamino, heptylamino, cycloheptylamino, octylamino and cyclooctylamino.

9. A compound as claimed in any one of claims 1 to 8 wherein R^1 is substituted with one or more of OR^{24}, halogen, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{1-6}haloalkyl, C_{1-6}alkylaryl, C_{1-6}alkylheterocyclyl, $(CH_2)_nOR^{24}$, $(CH_2)_nNR^{24}{}_2$, SR^{24}, NO_2, CN, $NR^{24}{}_2$, CO_2R^{24}, $NR^{24}C(O)R^{24}$, $NR^{24}S(O)_2R^{24}$, COR^{24}, $CONR^{24}{}_2$, $S(O)_2R^{24}$, $S(O)R^{24}$ or $SO_2NR^{24}{}_2$;
wherein R^{24} is hydrogen, C_{1-4} alkyl or C_{6-12} aryl preferably phenyl, or C_{5-12} heterocyclyl preferably pyridine, and n is 1, 2, 3, 4, 5 or 6;

wherein two R^{24} in $NR^{24}{}_2$ may optionally form a partially saturated, unsaturated or fully saturated three to seven membered ring containing one to three heteroatoms, said ring is preferably independently substituted with one or more of halogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{3-12} carbocyclyl, C_{3-12} heterocyclyl, OR^{25}, SR^{25}, NO_2, CN, $NR^{25}{}_2$, $NR^{25}COR^{25}$, $NR^{25}CONR^{25}{}_2$, $NR^{25}COR^{25}$, $NR^{25}CO_2R^{25}$, CO_2R^{25}, COR^{25}, $CONR^{25}{}_2$, $S(O)_2R^{25}$, $SONR^{25}{}_2$, $S(O)R^{25}$, $SO_2NR^{25}{}_2$, or $NR^{25}S(O)_2R^{25}$; and each saturated carbon in the optional ring is further optionally and independently substituted by =O, =S, $NNR^{26}{}_2$, $=N\text{-}OR^{26}$, $=NNR^{26}COR^{26}$, $=NNR^{26}CO_2R^{26}$, $=NNSO_2R^{26}$, or $=NR^{26}$; and each substitutable nitrogen atom is optionally substituted by R^{27}, COR^{27}, SO_2R^{27} or CO_2R^{27};

wherein R^{25} is hydrogen , C_{1-12} alkyl, C_{6-12} carbocyclyl or C_{5-12} heterocyclyl, optionally substituted by one or more of C_{1-6} alkyl, halogen, C_{1-6} haloalkyl,

OR^{28}, SR^{28}, NO_2, CN, $NR^{28}R^{28}$, $NR^{28}COR^{28}$, $NR^{28}CONR^{28}R^{28}$, $NR^{28}COR^{28}$, $NR^{28}CO_2R^{28}$, CO_2R^{28}, COR^{28}, $CONR^{28}{}_2$, $S(O)_2R^{28}$, $SONR^{28}{}_2$, $S(O)R^{28}$, $SO_2NR^{28}R^{28}$, $NR^{28}S(O)_2R^{28}$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -$N(R^{28})$-, -S(O)- and $-S(O_2)$-, wherein each R^{28} may be the same or different and is as defined below;

wherein R^{26} is hydrogen, C_{1-12} alkyl, C_{6-12} carbocyclyl or C_{5-12} heterocyclyl, optionally substituted by one or more of C_{1-6} alkyl, halogen, C_{1-6} haloalkyl, OR^{28}, SR^{28}, NO_2, CN, $NR^{28}R^{28}$, $NR^{28}COR^{28}$, $NR^{28}CONR^{28}R^{28}$, $NR^{28}COR^{28}$, $NR^{28}CO_2R^{28}$, CO_2R^{28}, COR^{28}, $CONR^{28}{}_2$, $S(O)_2R^{28}$, $S(O)R^{28}$, $SO_2NR^{28}R^{28}$, $NR^{28}S(O)_2R^{28}$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -$N(R^{28})$-, -S(O)- and $-S(O_2)$-, wherein each R^{28} may be the same or different and is as defined below;

wherein R^{27} is hydrogen, C_{1-6} alkyl, C_{1-6} haloalkyl or C_{6-12} aryl;

wherein R^{28} is hydrogen, C_{1-6} alkyl, or C_{1-6} haloalkyl.

10. A compound as claimed in any one of claims 1 to 9 wherein R^4 is selected from phenyl, cyclohexyl, acridine, benzimidazole, benzofuran, benzothiophene, benzoxazole, benzothiazole, indole, isoindole, indolizine, indazole, isoindole, isoquinoline, morpholine, napthalene, phenazine, phenothiazine, phenoxazine, piperazine, piperidine, pyridazine, pyridine, pyridinyl, pyrimidinyl, pyrazinyl, pyridazinyl, quinoline, quinolizine, tetrazine, thiomorpholine, thianaphthalene, thiopyran, triazine, trithiane, furan, imidazole, isoxazole, isothiazole, oxazole, oxadiazole, oxathiazole, pyrazole, pyrrole, tetrazole, thiophene, thiadiazole, thiatriazole, thiazole or triazole, wherein each substitutable carbon or hetero-atom in R^4 is optionally and independently

substituted by one or more of C_{1-6} alkyl, OR^{20}, SR^{20}, NO_2, CN, $NR^{20}{}_2$, $NR^{20}COR^{20}$, $NR^{20}CONR^{20}{}_2$, $NR^{20}COR^{20}$, $NHCO_2R^{20}$, CO_2R^{20}, COR^{20}, $CONR^{20}{}_2$, $S(O)_2R^{20}$, $SONR^{20}{}_2$, $S(O)R^{20}$, $SO_2NR^{20}{}_2$, or $NR^{20}S(O)_2R^{20}$;

wherein R^{20} is hydrogen, C_{1-6} alkyl, or C_{1-6} haloalkyl.

11. A compound as claimed in any one of claims 1 to 10 wherein R^4 is a six-membered carbocyclyl or heterocyclyl group optionally substituted with one or more of OR^{29}, $NR^{29}{}_2$, SR^{29}, $(CH_2)_nOR^{29}$, $(CH_2)_nNR^{29}{}_2$, halogen, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, haloalkyl, NO_2, CN, $NR^{29}C(O)R^{29}$, $NR^{29}S(O)_2R^{29}$, CO_2R^{29}, COR^{29}, $CONR^{29}{}_2$, $S(O)_2R^{29}$, $S(O)R^{29}$ or $SO_2NR^{29}{}_2$;

wherein R^{29} is hydrogen, C_{1-4} alkyl, C_{5-12} heterocyclyl or C_{6-12} aryl preferably phenyl, and n is 1, 2, 3, 4, 5 or 6;

wherein two R^{29} in $NR^{29}{}_2$ may optionally form a partially saturated, unsaturated or fully saturated five to seven membered ring containing one to three heteroatoms, optionally and independently substituted with one or more of halogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{6-12} carbocyclyl, C_{5-12} heterocyclyl, OR^{30}, SR^{30}, NO_2, CN, $NR^{30}{}_2$, $NR^{30}COR^{30}$, $NR^{30}CONR^{30}{}_2$, $NR^{30}COR^{30}$, $NR^{30}CO_2R^{30}$, CO_2R^{30}, COR^{30}, $CONR^{30}{}_2$, $S(O)_2R^{30}$, $SONR^{30}{}_2$, $S(O)R^{30}$, $SO_2NR^{30}{}_2$, or $NR^{30}S(O)_2R^{30}$; and each saturated carbon in the optional ring is further optionally and independently substituted by =O, =S, $NNR^{31}{}_2$, =N-OR^{31}, $=NNR^{31}COR^{31}$, $=NNR^{31}CO_2R^{31}$, $=NNSO_2R^{31}$, or $=NR^{31}$; and each substitutable nitrogen atom is optionally substituted by R^{32}, COR^{32}, SO_2R^{32} or CO_2R^{32};

wherein R^{30} is hydrogen , C_{1-12} alkyl, C_{6-12} carbocyclyl or C_{5-12} heterocyclyl, optionally substituted by one or more of C_{1-6} alkyl, halogen, C_{1-6} haloalkyl, OR^{33}, SR^{33}, NO_2, CN, $NR^{33}R^{33}$, $NR^{33}COR^{33}$, $NR^{33}CONR^{33}R^{33}$, $NR^{33}COR^{33}$, $NR^{33}CO_2R^{33}$, CO_2R^{33}, COR^{33}, $CONR^{33}{}_2$, $S(O)_2R^{33}$, $SONR^{33}{}_2$, $S(O)R^{33}$,

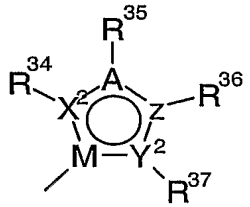
$SO_2NR^{33}R^{33}$, $NR^{33}S(O)_2R^{33}$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -$N(R^{33})$-, -S(O)- and $-S(O_2)$-, wherein each R^{33} may be the same or different and is as defined below;

wherein R^{31} is hydrogen, C_{1-12} alkyl, C_{6-12} carbocyclyl or C_{5-12} heterocyclyl, optionally substituted by one or more of C_{1-6} alkyl, halogen, C_{1-6} haloalkyl, OR^{33}, SR^{33}, NO_2, CN, $NR^{33}R^{33}$, $NR^{33}COR^{33}$, $NR^{33}CONR^{33}R^{33}$, $NR^{33}COR^{33}$, $NR^{33}CO_2R^{33}$, CO_2R^{33}, COR^{33}, $CONR^{33}{}_2$, $S(O)_2R^{33}$, $S(O)R^{33}$, $SO_2NR^{33}R^{33}$, $NR^{33}S(O)_2R^{33}$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -$N(R^{33})$-, -S(O)- and -$S(O_2)$-, wherein each R^{21} may be the same or different and is as defined below;

wherein R^{32} is hydrogen, C_{6-12} aryl, C_{1-6} alkyl or C_{1-6} haloalkyl;

wherein R^{33} is hydrogen, C_{1-6} alkyl, or C_{1-6} haloalkyl.

12. A compound as claimed in any one of claims 1 to 11 wherein R^4 is a five-membered heterocyclyl,



wherein A, X^2, Y^2 or Z are independently selected from N, O, C, S and M is C or N, wherein one, two, three or four of A, X^2, Y^2, Z and M is other than C;

R^{34}, R^{35}, R^{36} or R^{37} are independently selected from a lone electron pair, hydrogen, halogen, C_{1-12} alkyl, C_{1-12} haloalkyl, OR^{38}, SR^{38}, NO_2, CN, $NR^{38}{}_2$, $NR^{38}COR^{38}$, $NR^{38}CONR^{38}{}_2$, $NR^{38}COR^{38}$, $NR^{38}CO_2R^{38}$, $(CH_2)_nOR^{38}$,

$(CH_2)_nNR^{38}_2$, CO_2R^{38}, COR^{38}, $CONR^{38}_2$, $S(O)_2R^{38}$, $SONR^{38}_2$, $S(O)R^{38}$, $SO_2NR^{38}_2$, or $NHS(O)_2R^{38}$;
wherein n is 1 to 6, preferably n is 1, 2 or 3;

or wherein any two of R^{34}, R^{35}, R^{36} or R^{37} may optionally form a partially saturated, unsaturated or fully saturated five to seven membered ring containing zero to three heteroatoms, each saturated carbon in the optional fused ring is further optionally and independently substituted with one or more of halogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{6-12} carbocyclyl, C_{5-12} heterocyclyl, OR^{38}, SR^{38}, NO_2, CN, NR^{38}_2, $NR^{38}CONR^{38}_2$, $NR^{38}COR^{38}$, $NR^{38}CO_2R^{38}$, $(CH_2)_nOR^{38}$, $(CH_2)_nNR^{38}_2$, CO_2R^{38}, COR^{38}, $CONR^{38}_2$, $S(O)_2R^{38}$, $SONR^{38}_2$, $S(O)R^{38}$, $SO_2NR^{38}_2$, or $NR^{38}S(O)_2R^{38}$; and each saturated carbon in the optional fused ring is further optionally and independently substituted by =O, =S, NNR^{39}_2, =N-OR^{39}, =$NNR^{39}COR^{39}$, =$NNR^{39}CO_2R^{39}$, =$NNSO_2R^{39}$, or =NR^{39}; and each substitutable nitrogen atom in R^4 is optionally substituted by R^{40}, COR^{40}, SO_2R^{40} or CO_2R^{40};
wherein n is 1 to 6, preferably n is 1, 2 or 3;

wherein R^{38} is hydrogen, C_{1-12} alkyl, C_{6-12} carbocyclyl or C_{5-12} heterocyclyl, optionally substituted by one or more of C_{1-6} alkyl, halogen, C_{1-6} haloalkyl, OR^{41}, SR^{41}, NO_2, CN, $NR^{41}R^{41}$, $NR^{41}CONR^{41}R^{41}$, $NR^{41}COR^{41}$, $NR^{41}CO_2R^{41}$, CO_2R^{41}, COR^{41}, $CONR^{41}_2$, $S(O)_2R^{41}$, $SONR^{41}_2$, $S(O)R^{41}$, $SO_2NR^{41}R^{41}$, $NR^{41}S(O)_2R^{41}$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -N(R^{41})-, -S(O)- and –$S(O_2)$-, wherein each R^{41} may be the same or different and is as defined below;

wherein R^{39} is hydrogen, C_{1-12} alkyl, carbocyclyl or heterocyclyl, optionally substituted by one or more of C_{1-6} alkyl, halogen, C_{1-6} haloalkyl, OR^{41}, SR^{41}, NO_2, CN, $NR^{41}R^{41}$, $NR^{41}COR^{41}$, $NR^{41}CONR^{41}R^{41}$, $NR^{41}COR^{41}$, $NR^{41}CO_2R^{41}$,

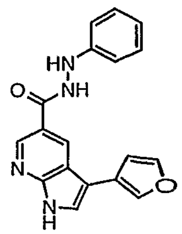
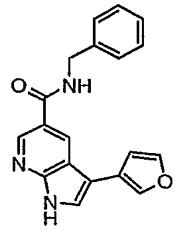
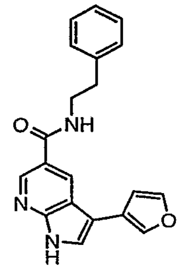
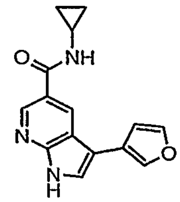
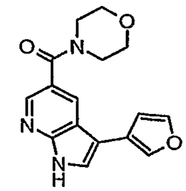
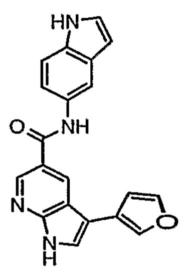
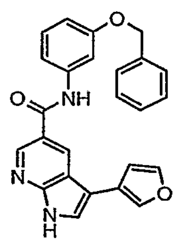
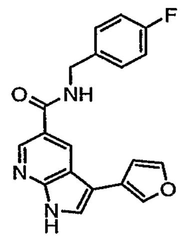
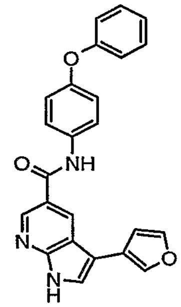
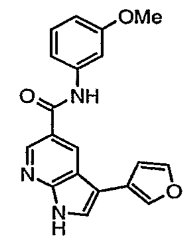
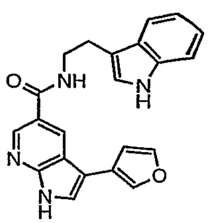
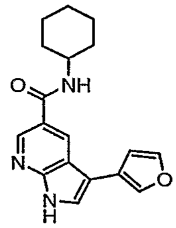
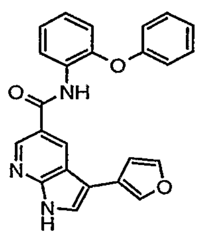
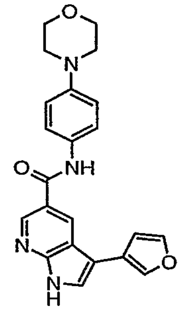
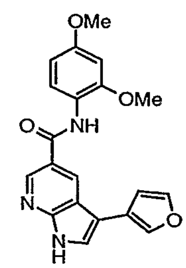
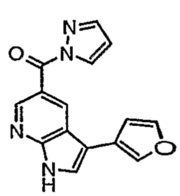
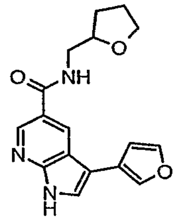
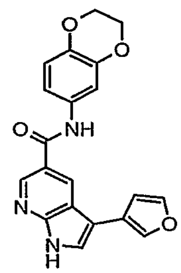
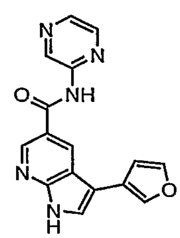
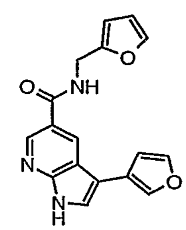
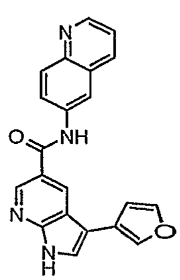
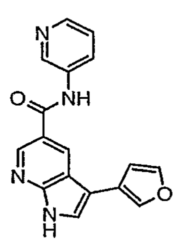
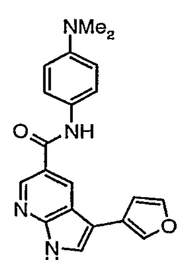
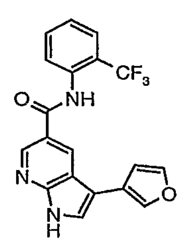
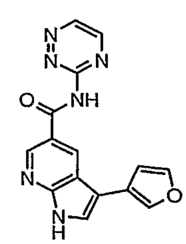
CO_2R^{41}, COR^{41}, $CONR^{41}{}_2$, $S(O)_2R^{41}$, $S(O)R^{41}$, $SO_2NR^{41}R^{41}$, $NR^{41}S(O)_2R^{41}$, wherein the C_{1-12} alkyl group optionally incorporates one or two insertions selected from the group consisting of -O-, -N(R^{41})-, -S(O)- and –S(O_2)-, wherein each R^{41} may be the same or different and is as defined below;

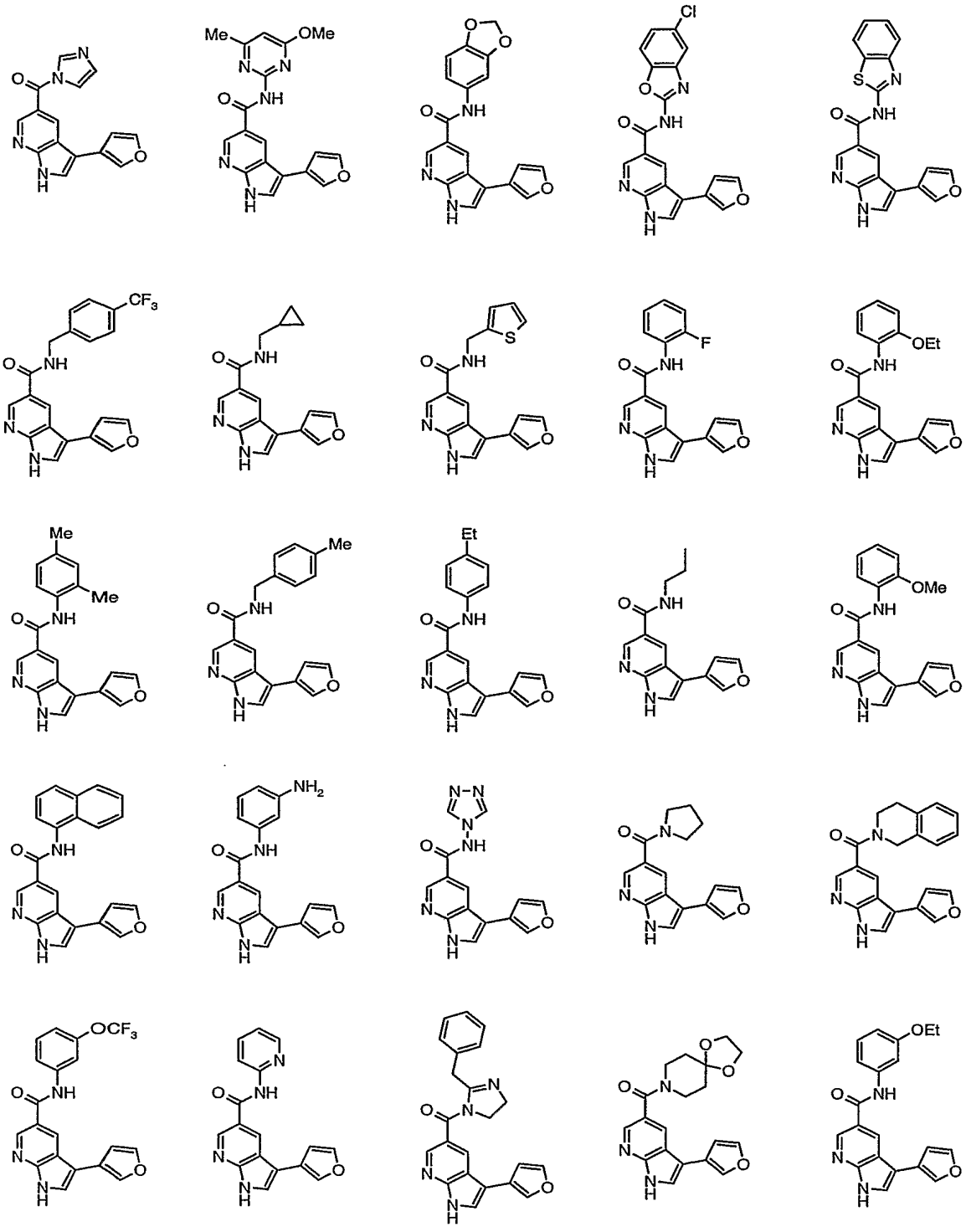
wherein R^{40} is hydrogen, C_{1-6} alkyl, C_{1-6} haloalkyl or C_{6-12} aryl.

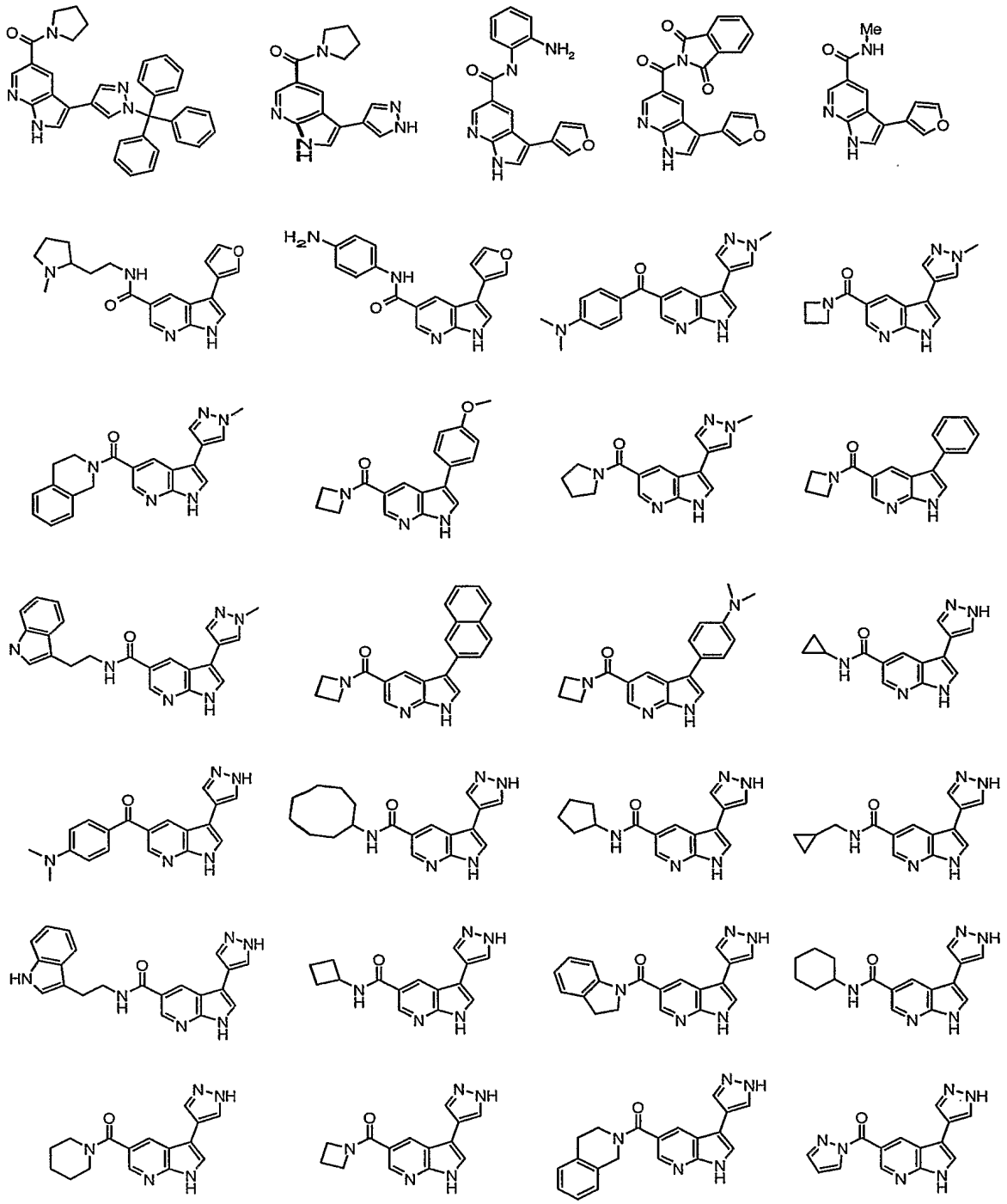
wherein R^{41} is hydrogen, C_{1-6} alkyl, or C_{1-6} haloalkyl.

13. A compound as claimed in claim 12 wherein R^4 is furan, imidazole, isoxazole, isothiazole, oxazole, oxadiazole, oxatriazole, pyrazole, pyrrole, tetrazole, thiophene, thiadiazole, thiatriazole, thiazole or triazole; and R^{34}, R^{35}, R^{36} or R^{37} are independently selected from a lone electron pair, hydrogen, halogen, C_{1-6} alkyl, C_{1-6} haloalkyl, OR^{42}, SR^{42}, CN, $NR^{42}{}_2$, $NR^{42}COR^{42}$, CO_2R^{42}, COR^{42}, $CONR^{42}{}_2$, $S(O)_2R^{42}$, or $S(O)R^{42}$;
wherein R^{42} is hydrogen, C_{1-4} alkyl, preferably methyl or ethyl or carbocyclyl, preferably phenyl.

14 A compound as claimed in any one of claims 1 to 13 selected from

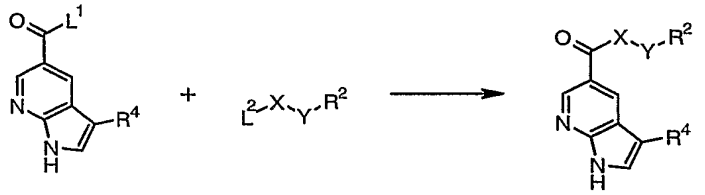






























15. A process for the manufacture of a compound of formula (I) wherein R^1 is a group of formula (II) as defined in the any one of claims 1 to 14 of the invention comprising the condensation of an intermediate (III) with an

intermediate (IV).

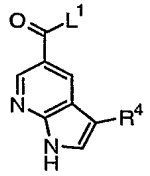


(III) (IV) (I)

wherein R^2 and R^4 are as defined in any one of claims 1 to 14; and wherein each of L^1 and L^2 is independently a leaving group wherein L^1 and L^2 together form a condensation product.

16. A process as claimed in claim 15 wherein L^1 is OH, OR^{50}, OM, Cl, Br or I wherein R^{50} is C_{1-6} alkyl, preferably methyl or ethyl and M is Na, Li, K, Ca, Mg or Ba, and L^2 is hydrogen or M.

17. A compound of formula (III)



(III)

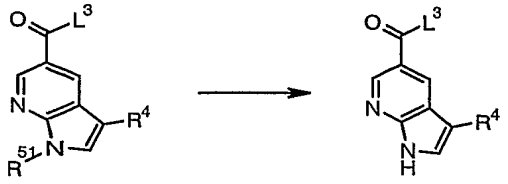
wherein R^4 is as defined any one of claims 1 to 14

L^1 is OH, OR^{50}, OM, Cl, Br, or I

R^{50} is C_{1-6} alkyl, and

M is Na, Li, K, Ca, Mg, or Ba.

18. A process for the manufacture of a compound of formula (V) comprising removal of group R^{51} from an intermediate (VI)



(VI) (V)

wherein L^3 is R^1 or L^1;

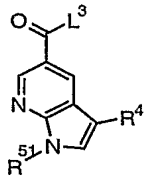
R^1 and R^4 are as defined in any one of claims 1 to 14;

L^1 is as defined in claim 17;

and R^{51} is an amino protecting group selected from $R^{52}SO_2$, $R^{52}C(O)$, $R^{52}{}_3Si$, $R^{52}OCH_2$, $(R^{52})_2NSO_2$, $(R^{52})_2NC(O)$, $R^{52}OC(O)$, $R^{52}(R^{52}O)CH$, $R^{52}CH_2CH_2$, $R^{52}CH_2$, $PhC(O)CH_2$, $CH_2{=}CH$, $ClCH_2CH_2$, Ph_3C, $Ph_2(4\text{-pyridyl})C$, Me_2N, $HO\text{-}CH_2$, $R^{52}OCH_2$, $(R^{52})_3SiOCH_2$, $(R^{52}O)_2CH$, $t\text{-}BuOC(O)CH_2$, Me_2NCH_2, and tetrahydropyranylamine,

wherein R^{52} is $C_{1\text{-}6}$ alkyl or $C_{6\text{-}12}$ aryl.

19. A compound of formula (VI)

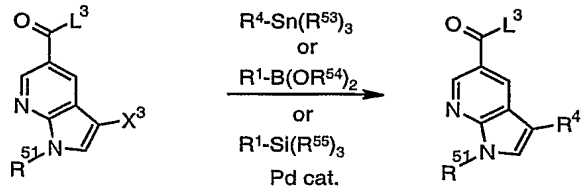


(VI)

wherein R^4 is as defined in any one of claims 1 to 14, and

wherein L^3 and R^{51} are as defined in claim 18.

20. A process for the manufacture of a compound of formula (VI) comprising a a) reaction of a compound of formula (VII) with stannane $R^4\text{-}Sn(R^{53})_3$ in the presence of a palladium catalyst or b) reaction of a compound of formula (VII) with boronic acid or ester $R^4\text{-}B(OR^{54})_2$ in a presence of a suitable palladium catalyst or c) reaction of a compound of formula (VII) with silane $R^4\text{-}Si(R^{55})_3$ in the presence of a palladium catalyst;



(VII) (VI)

wherein R^4 is as defined in any one of claims 1 to 14,

L^3 is as defined in claim 18;

R^{51} is an amino protecting group as defined in claim 18;

X^3 is F, Cl, Br I or CF_3SO_3,

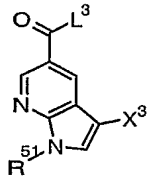
and R^{53} is independently C_{1-6} alkyl;

R^{54} is independently hydrogen or C_{1-6} alkyl or wherein two R^{54} groups together optionally form a five, six or seven membered ring with the boron and oxygen atoms, wherein the ring is optionally substituted with one or more C_{1-6} alkyl group.

and R^{55} is independently C_{1-6} alkyl, F, or OH.

21. A process as claimed in claim 20 wherein the catalyst is one or more selected from $(PPh_3)_2PdCl_2$, $(PPh_3)_4Pd$, $Pd(OAc)_2$, $[PdCl(\eta^3\text{-}C_3H_5]_2$, $Pd_2(dba)_3$, $Pd(dba)_2$ (dba = dibenzylidenacetone), and Pd/P(t-Bu)$_3$.

22. A compound of formula (VII)



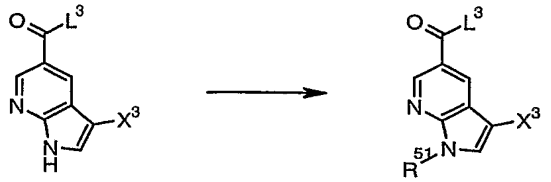
(VII)

wherein L^3 is as defined in claim 18;

wherein R^{51} is an amino protecting group as defined in claim 18;

wherein X^3 is as defined in claim 20.

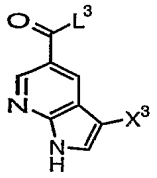
23. A process for the manufacture of a compound of formula (VII) comprising protection of the pyrrole nitrogen with a group R^{51},



(VIII) (VII)

wherein L^3 is as defined in claim 18;
wherein R^{51} is an amino protecting group defined in claim 18;
wherein X^3 is as defined in claim 20.

24. A compound of formula (VIII)



(VIII)

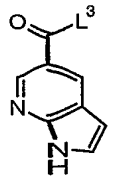
wherein L^3 is as defined in claim 18;
and X^3 is as defined in claim 20.

25. A process for the production of a compound of formula (VIII) by the introduction of an X^3 group into a compound of formula (IX)

(IX) (VIII)

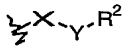
wherein L^3 is as defined in claim 18 and X^3 is as defined in claim 20.

26. A compound of formula (IX)



(IX)

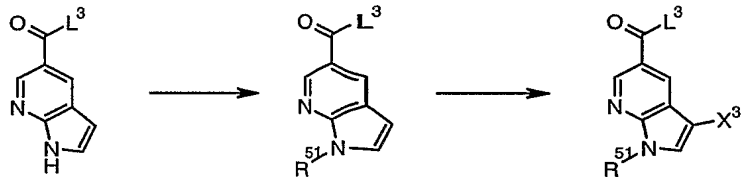
wherein L^3 is a group L^1 as defined in claim 17 or a group R^1, wherein R^1 is a group of formula (II)



(II)

wherein X is NR^3, O, S or $(CR^{22}R^{22})_n$, Y is absent or is NR^{23}, O, or $(CR^{23}R^{23})_n$, R^2 is optionally substituted C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{3-12} carbocyclyl or C_{3-12} heterocyclyl as claimed in any one of claims 1 to 14.

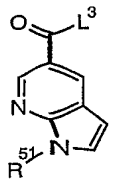
27. A process for the production of a compound of formula (VII) by the introduction of a X^3 group to a compound of formula (X)



(IX) (X) (VII)

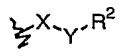
wherein L^3 and R^{51} are as defined in claim 18 and X^3 is as defined in claim 20.

28. A compound of formula (X)



(X)

wherein L^3 is a group L^1 as defined in claim 17 or a group R^1, wherein R^1 is a group of formula (II)

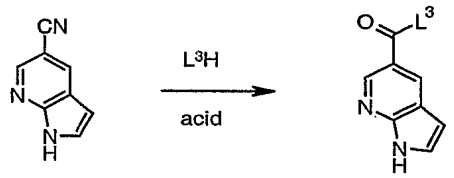


(II)

wherein X is NR^3, O, S or $(CR^{22}R^{22})_n$, Y is absent or is NR^{23}, O, or $(CR^{23}R^{23})_n$, R^2 is optionally substituted C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{3-12} carbocyclyl or C_{3-12} heterocyclyl as claimed in any one of claims 1 to 14;

and R^{51} is an amino protecting group as defined in claim 18.

29. A process for the preparation of compound of formula (IX) by the acid-catalysed hydrolysis of nitrile (XI) in the presence of an alcohol,

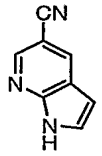


(XI) (IX)

wherein L^3 is OR^{50};

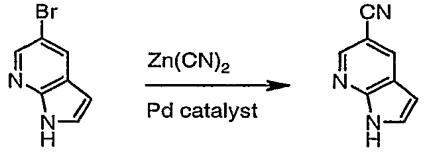
and R^{50} is as defined in claim 16.

30. A compound of formula (XI)



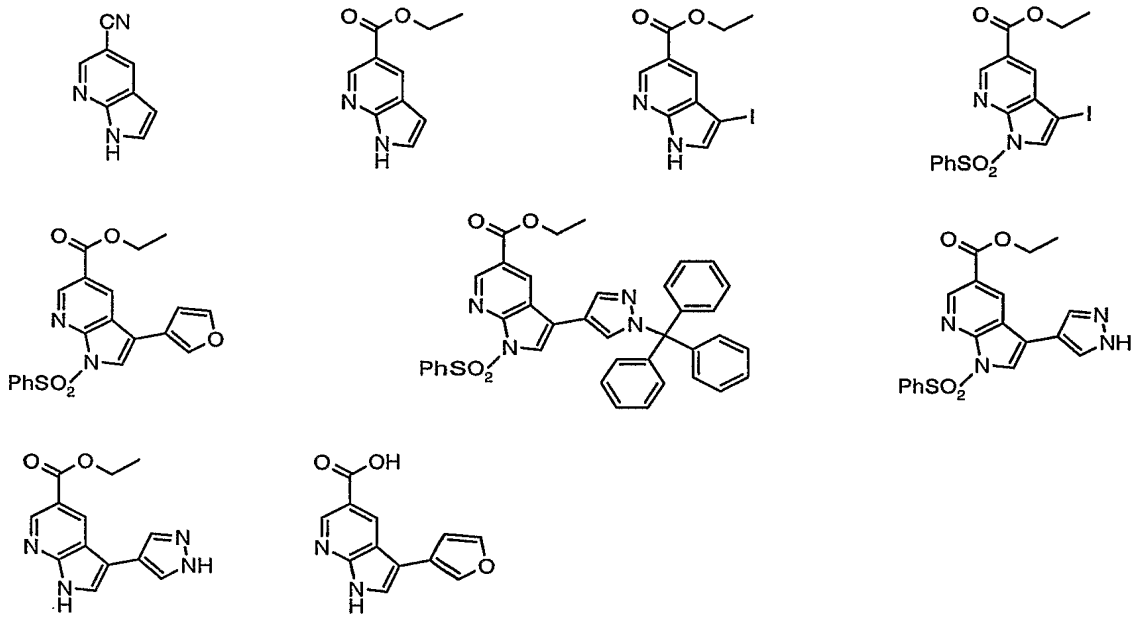
(XI)

31. A process for the production of 1H-Pyrrolo[2,3-b]pyridine-5-carbonitrile (XI) comprising reaction of 5-bromo-1*H*-pyrrolo[2,3-*b*]pyridine with $Zn(CN)_2$ in the presence of a palladium catalyst.



(XI)

32 A compound as claimed in any one of claims 17, 19, 22, 24, 26, 28 or 30 selected from one or more of:



33. A process for the production of a compound of formula (I) comprising converting a starting material into an intermediate compound of any one of claims 17, 19, 22, 24, 26, 28 or 30, using a process as set out in one or more of claims 15, 16, 18, 20, 21, 23, 25, 27, 29 or 31.

and optionally converting the intermediate compound so formed into another intermediate compound

and then converting the intermediate compound into a compound of formula (I) using a process as claimed in any one of claims 15, 16, 18, 20, 21, 23, 25, 27, 29 or 31.

34. A pharmeceutical composition comprising a compound as claimed in any one of claims 1 to 14 in combination with a pharmaceutically acceptable carrier, diluent or excipient.

35. A composition as claimed in claim 34, additionally comprising one or more of an anti-inflammatory agent, an AMPA receptor antagonist, a chemotherapeutic agent and/or an antiproliferative agent.

36. A process for the manufacture of a composition according to claim 34 or claim 35, comprising combining a compound according to any one of claims 1 to 14 of the invention with a pharmaceutically acceptable carrier or diluent and optionally with any one or more of additional agents of claim 35.

37. A compound as claimed in any one of claims 1 to 14, or a composition as claimed in claim 34 or claim 35, for use in medicine.

38. A compound as defined in any of claims 1-14, or a composition as defined in any of claims 34 or 35, for inhibiting JNK.

39. A compound as defined in any of claims 1-14, or a composition as defined in any of claims 34 or 35, for selectively inhibiting JNK3.

40. A compound as defined in any of claims 1-14, or a composition as defined in any of claims 34 or 35, for use in the prevention or treatment of a JNK-mediated disorder.

41. A compound or a composition as claimed in claim 40, wherein the disorder is a neurodegenerative disorder (including dementia), inflammatory disease, a disorder linked to apoptosis, particularly neuronal apoptosis,

autoimmune disease, destructive bone disorder, proliferative disorder, cancer, infectious disease, allergy, ischemia reperfusion injury, heart attack, angiogenic disorder, organ hypoxia, vascular hyperplasia, cardiac hypertrophy, thrombin induced platelet aggregation and/or any condition associated with prostaglandin endoperoxidase synthase-2.

42. A compound or composition as claimed in claim 41, wherein the neurodegenerative disorder results from apoptosis and/or inflammation.

43. A compound or composition as claimed in claim 41 or 42, wherein the neurodegenerative disorder is: dementia; Alzheimer's disease; Parkinson's disease; Amyotrophic Lateral Sclerosis; Huntington's disease; senile chorea; Sydenham's chorea; hypoglycemia; head and spinal cord trauma including traumatic head injury; acute and chronic pain; epilepsy and seizures; olivopontocerebellar dementia; neuronal cell death; hypoxia-related neurodegeneration; acute hypoxia; glutamate toxicity including glutamate neurotoxicity; cerebral ischemia; dementia linked to meningitis and/or neurosis; cerebrovascular dementia; or dementia in an HIV-infected patient.

44. A compound or composition as claimed in claim 41 or 42, wherein the neurodegenerative disorder is a peripheral neuropathy, including mononeuropathy, multiple mononeuropathy or polyneuropathy, such as may be found in diabetes mellitus, Lyme disease or uremia; peripheral neuropathy caused by a toxic agent; demyelinating disease such as acute or chronic inflammatory polyneuropathy, leukodystrophies or Guillain-Barré syndrome; multiple mononeuropathy secondary to a collagen vascular disorder; multiple mononeuropathy secondary to sarcoidosis; multiple mononeuropathy secondary to a metabolic disease; or multiple mononeuropathy secondary to an infectious disease.

45. A compound or composition as claimed in claim 41, wherein the disorder is inflammatory bowel disorder; bronchitis; asthma; acute pancreatitis; chronic pancreatitis; allergies of various types; Alzheimer's disease; autoimmune disease such as rheumatoid arthritis, systemic lupus erythematosus, glumerulonephritis, scleroderma, chronic thyroiditis, Graves's disease, autoimmune gastritis, diabetes, autoimmune haemolytis anaemia, autoimmune neutropaenia, thrombocytopenia, atopic dermatitis, chronic active hepatitis, myasthenia gravis, multiple sclerosis, ulcerative colitis, Crohn's disease, psoriasis or graft vs host disease.

46. A method of treating or preventing a JNK-mediated disorder in an individual, which method comprises administering to said individual a compound as claimed in any of claims 1-14 or a composition as claimed in any of claims 34 or 35.

47. A method as claimed in claim 46, wherein the individual is in need of the treatment or prevention of the disorder.

48. A method as claimed in claim 46 or 47, wherein the disorder is a neurodegenerative disorder, inflammatory disease, a disorder linked to apoptosis, particularly neuronal apoptosis, autoimmune disease, destructive bone disorder, proliferative disorder, cancer, infectious disease, allergy, ischemia reperfusion injury, heart attack, angiogenic disorder, organ hypoxia, vascular hyperplasia, cardiac hypertrophy, thrombin induced platelet aggregation and/or any condition associated with prostaglandin endoperoxidase synthase-2.

49. A method as claimed in claim 48, wherein the neurodegenerative disorder results from apoptosis and/or inflammation.

50. A method as claimed in claim 48 or 49, wherein the neurodegenerative disorder is: dementia; Alzheimer's disease; Parkinson's disease; Amyotrophic Lateral Sclerosis; Huntington's disease; senile chorea; Sydenham's chorea; hypoglycemia; head and spinal cord trauma including traumatic head injury; acute and chronic pain; epilepsy and seizures; olivopontocerebellar dementia; neuronal cell death; hypoxia-related neurodegeneration; acute hypoxia; glutamate toxicity including glutamate neurotoxicity; cerebral ischemia; dementia linked to meningitis and/or neurosis; cerebrovascular dementia; or dementia in an HIV-infected patient.

51. A method as claimed in claim 48 or 49, wherein the neurodegenerative disorder is a peripheral neuropathy, including mononeuropathy, multiple mononeuropathy or polyneuropathy, such as may be found in diabetes mellitus, Lyme disease or uremia; peripheral neuropathy caused by a toxic agent; demyelinating disease such as acute or chronic inflammatory polyneuropathy, leukodystrophies or Guillain-Barré syndrome; multiple mononeuropathy secondary to a collagen vascular disorder; multiple mononeuropathy secondary to sarcoidosis; multiple mononeuropathy secondary to a metabolic disease, or multiple mononeuropathy secondary to an infectious disease.

52. A method as claimed in claim 46, 47 or 48, wherein the disorder is inflammatory bowel disorder; bronchitis; asthma; acute pancreatitis; chronic pancreatitis; allergies of various types; Alzheimer's disease; autoimmune disease such as rheumatoid arthritis, systemic lupus erythematosus, glumerulonephritis, scleroderma, chronic thyroiditis, Graves's disease, autoimmune gastritis, diabetes, autoimmune haemolytis anaemia, autoimmune

neutropaenia, thrombocytopenia, atopic dermatitis, chronic active hepatitis, myasthenia gravis, multiple sclerosis, ulcerative colitis, Crohn's disease, psoriasis or graft vs host disease.

53 A method as claimed in any of claims 46-52, wherein one or more other active agent is administered to the individual simultaneously, subsequently or sequentially to administering the compound.

54. A method as claimed in claim 53, wherein the other active agent is an anti-inflammatory agent.

55. Use of a compound as defined in claim 1-14 in the manufacture of a medicament for the prevention or treatment of a JNK-mediated disorder.

56. Use as claimed in claim 55, wherein the disorder is a neurodegenerative disorder, inflammatory disease, a disorder linked to apoptosis, particularly neuronal apoptosis, autoimmune disease, destructive bone disorder, proliferative disorder, cancer, infectious disease, allergy, ischemia reperfusion injury, heart attack, angiogenic disorder, organ hypoxia, vascular hyperplasia, cardiac hypertrophy, thrombin induced platelet aggregation and/or any condition associated with prostaglandin endoperoxidase synthase-2.

57. Use as claimed in claim 55, wherein the neurodegenerative disorder results from apoptosis and/or inflammation.

58. Use as claimed in claim 56 or 57, wherein the neurodegenerative disorder is: dementia; Alzheimer's disease; Parkinson's disease; Amyotrophic Lateral Sclerosis; Huntington's disease; senile chorea; Sydenham's chorea; hypoglycemia; head and spinal cord trauma including traumatic head injury;

acute and chronic pain; epilepsy and seizures; olivopontocerebellar dementia; neuronal cell death; hypoxia-related neurodegeneration; acute hypoxia; glutamate toxicity including glutamate neurotoxicity; cerebral ischemia; dementia linked to meningitis and/or neurosis; cerebrovascular dementia; or dementia in an HIV-infected patient.

59. Use as claimed in claim 56 or 57, wherein the neurodegenerative disorder is a peripheral neuropathy, including mononeuropathy, multiple mononeuropathy or polyneuropathy, such as may be found in diabetes mellitus, Lyme disease or uremia; peripheral neuropathy caused by a toxic agent; demyelinating disease such as acute or chronic inflammatory polyneuropathy, leukodystrophies or Guillain-Barré syndrome; multiple mononeuropathy secondary to a collagen vascular disorder; multiple mononeuropathy secondary to sarcoidosis; multiple mononeuropathy secondary to a metabolic disease; or multiple mononeuropathy secondary to an infectious disease.

60. Use as claimed in claim 56, wherein the disorder is inflammatory bowel disorder; bronchitis; asthma; acute pancreatitis; chronic pancreatitis; allergies of various types; Alzheimer's disease; autoimmune disease such as rheumatoid arthritis, systemic lupus erythematosus, glumerulonephritis, scleroderma, chronic thyroiditis, Graves's disease, autoimmune gastritis, diabetes, autoimmune haemolytis anaemia, autoimmune neutropaenia, thrombocytopenia, atopic dermatitis, chronic active hepatitis, myasthenia gravis, multiple sclerosis, ulcerative colitis, Crohn's disease, psoriasis or graft vs host disease.

61. Use as claimed in any of claims 55-60, wherein the compound is administered simultaneously, subsequently or sequentially with one or more other active agent.

62. Use as claimed in claim 61, wherein the other active agent is an anti-inflammatory agent such as a p38 inhibitor.

63. An assay for determining the activity of the compounds as defined in any of claims 1-14, comprising providing a system for assaying the activity and assaying the activity of a compound as defined in any of claims 1-14.

64. An assay as claimed in claim 63, wherein the assay is for the JNK inhibiting activity of the compound, preferably for the JNK3-specific inhibiting activity of the compound.

65. An assay as claimed in claim 63 or 64, wherein the assay is a Scintillation Proximity Assay (SPA) using radiolabelled ATP, or is an ELISA.

66. A method of inhibiting the activity or function of a JNK, particularly JNK3, which method comprises exposing a JNK to a compound as defined in any of claims 1-14 or a composition as defined in any of claims 34-45.

67. A method as claimed in claim 66, which is performed in a research model.

68. A method as claimed in claim 67, wherein the research model is an animal model.